

1. In a web-based computing environment that manages the execution of web programs such that the environment causes a web program to terminate if it executes one of a set of program-terminating statements, a computer-implemented method of controlling the execution of application sessions comprising the acts of:

- a control program receiving an application definition expressed as a plurality of statements, including at least one of said program-terminating statements;
- the control program receiving a request to execute the application definition and identifying whether the request to execute corresponds to an existing application session;
- if the request to execute does not correspond to an existing application session, initializing implicit application session state including initializing a program pointer to identify a first statement in the application definition to execute;
- if the request to execute corresponds to an existing application session, restoring implicit application session state from a storage location, including restoring the program pointer to identify a statement in the application definition to execute;
- the control program causing the execution of the statements in the application definition and in connection therewith maintaining implicit application session state;
- causing the implicit application session state to be stored to a storage location before execution of any statements of the set of program-terminating

statements, so that a subsequent request to execute the application definition may continue execution of the same application session.

2. The computer-implemented method of claim 1 wherein the environment is a servlet container and wherein the control program is implemented as a servlet executing under the control of the servlet container.
3. The computer-implemented method of claim 1 wherein the set of program-terminating statements includes statements to display web pages.
4. The computer-implemented method of claim 3 wherein the application definition is related to at least one web page having a link pointing to the control program so that activation of the link causes another request to the control program to continue execution of the application session as defined by the application definition.
5. The computer-implemented method of claim 4 wherein the application definition includes statements to display a web page that indicate a transfer of control to the web page and a return of control from the web page.
6. The computer-implemented method of claim 1 wherein the application definition includes statements defining and utilizing explicit state of the application definition and wherein the control program maintains and stores at least a subset of said explicit state when storing implicit state.

7. The computer-implemented method of claim 6 wherein the application definition may be expressed to have a plurality of naming scopes and wherein the control program maintains explicit state according to naming scopes.

8. The computer-implemented method of claim 1 wherein the application definition is organized as a program space having a dataspace for holding explicit state and wherein the dataspace is associated with a persistent object to store the explicit state.

9. The computer-implemented method of claim 1 wherein an original application program is developed in a high-level language and compiled into the application definition.

10. The computer-implemented method of claim 9 wherein the application definition is an XML document having tags reflecting language constructs of the high-level language.

11. The computer-implemented method of claim 1 wherein the control program detects whether the statement to be executed is one of the set of program terminating statements and, if so, causing the implicit session state to be stored before execution thereof.

12. The computer-implemented method of claim 1 wherein implicit session state is stored each time state is updated.

13. The computer-implemented method of 9 wherein the compilation of the original application program detects whether it needs to generate an application definition statement from the set of program-terminating statements and, if so, the compilation first generates statements in the definition to cause the storing of implicit state.

14. A set of computer-readable instructions for execution on a web computing environment that manages the execution of web programs such that the environment causes a web program to terminate if it executes one of a set of program-terminating statements, comprising:

a first set of instruction to receive an application definition expressed as a plurality of statements, including at least one of said program-terminating statements;

a second set of instructions to receive a request to execute the application definition and to identify whether the request to execute corresponds to an existing application session;

a third set of instructions to initialize implicit application session state including initializing a program pointer to identify a first statement in the application definition to execute, if the request to execute does not correspond to an existing application session;

a fourth set of instructions to restore implicit application session state from a storage location, including restoring the program pointer to identify a statement in the application definition to execute, if the request to execute corresponds to an existing application session; and

a fifth set of instruction to cause the execution of the statements in the application definition and to maintain implicit application session state in connection therewith.

15. The set of computer-readable instructions of claim 14 further including instructions for causing the implicit application session state to be stored to a storage location before execution of any statements of the set of program-terminating statements, so that a subsequent request to execute the application definition may continue execution of the same application session.

16. The set of computer-readable instructions of claim 14 wherein the environment is a servlet container and wherein the computer-readable instructions are implemented as a servlet executing under the control of the servlet container.

17. The set of computer-readable instructions of claim 14 wherein the set of program-terminating statements includes statements to display web pages.

18. The set of computer-readable instructions of claim 17 wherein the application definition is related to at least one web page having a link pointing to the set of computer-

readable instructions so that activation of the link causes another request to the computer-readable instructions to continue execution of the application session as defined by the application definition.

19. The set of computer-readable instructions of claim 17 wherein the application definition includes statements to display a web page that indicate a transfer of control to the web page and a return of control from the web page.

20. The set of computer-readable instructions of claim 14 wherein the application definition includes statements defining and utilizing explicit state of the application definition and wherein the computer-readable instructions further includes instructions to maintain and store at least a subset of said explicit state when storing implicit state.

21. The set of computer-readable instructions of claim 19 wherein the application definition may be expressed to have a plurality of naming scopes and wherein the computer-readable instructions include instructions to maintain explicit state according to naming scopes.

22. The set of computer-readable instructions of claim 14 wherein the application definition is organized as a program space having a dataspace for holding explicit state and wherein the dataspace is associated with a persistent object to store the explicit state.

23. The set of computer-readable instructions of claim 14 wherein the application definition is an XML document having tags reflecting language constructs of the high-level language.

24. The set of computer-readable instructions of claim 14 further including instructions to detect whether the statement to be executed is one of the set of program terminating statements and, if so, causing the implicit session state to be stored before execution thereof.

25. The set of computer-readable instructions of claim 14 wherein implicit session state is stored each time state is updated.

26. A program controller, comprising:

- logic to receive an application definition expressed as a plurality of statements,
 - including at least one statement which when executed causes the normal termination of the program controller;
- logic, responsive to a request to execute the application definition, to identify
 - whether the request to execute corresponds to an existing application session;
- logic to initialize implicit application session state including initializing a program
 - pointer to identify a first statement in the application definition to execute;
- logic to restore implicit application session state from a storage location,
 - including restoring the program pointer to identify a statement in the

application definition to execute, if the request to execute corresponds to an existing application session; and
logic to cause the execution of the statements in the application definition and to maintain implicit application session state in connection therewith.

27. The program controller of claim 26 further including logic to cause the implicit application session state to be stored to a storage location before execution of any statement that causes the normal termination of the program controller, so that a subsequent request to execute the application definition may continue execution of the same application session.